REMARKS

Claim 1 has been canceled and new claim 20 has been added. Support for new claim 20 can be found, for example, in original claim 1 and at page 4 line 30 to page 5 line 17. Claims 2-5, 11-14, and 16 have been amended to depend from new claim 20. Claim 18 has been amended to more clearly define the invention, and support for this amendment can be found, for example, at page 5 lines 18 to 20. Claim 19 has been amended to more clearly define the invention, and support for this amendment can be found, for example, at page 4 line 30 to page 5 line 17. Claims 2-20 are pending.

§ 112 Rejections

Claim 18 stands rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner asserts that no support could be found in the disclosure as originally filed for the limitation that the fluoropolymer surface is substantially free of fluorosurfactant. The Examiner cites *Ex parte Grasselli*, 231 USPQ 393, for the proposition that the addition of a negative limitation which did not appear in the disclosure as originally filed introduces a new concept and violates the description requirement of 35 U.S.C. § 112. .

However, in rejecting a claim under the first paragraph of 35 U.S.C. § 112 for lack of adequate descriptive support, it is incumbent upon the examiner to establish that the originally-filed disclosure would not have reasonably conveyed to one having ordinary skill in the art that an applicant had possession of the claimed subject matter. *Ex parte Parks*, 30 USPQ2d 1234, 1236 (BdPatApp&Int 1993) (citation omitted). Moreover, adequate description under the first paragraph of 35 U.S.C. § 112 does not require literal support for the claimed invention. *Id.* (citations omitted). Rather, it is sufficient if the originally filed disclosure would have conveyed to one having ordinary skill in the art that an applicant had possession of the concept of what is claimed. *Id.* (citations omitted).

In the *Parks* decision, it was concluded that "it cannot be said that the originally filed disclosure would not have conveyed to one having ordinary skill in the art the concept of effecting decomposition at an elevated temperature in the absence of a catalyst." *Id.* at 1238. This was despite the fact that the application never explicitly stated that a catalyst was not used.

Similarly, the present application reasonably conveys to one skilled in the art that the inventors had possession of the invention now defined by claim 18; that is, a treated fluoropolymer substrate suitable for bonding directly to a polymeric substrate comprising a surface exposed to a combination of a light-absorbing compound and an electron donor and actinic radiation wherein the fluoropolymer substrate surface is substantially free of fluorosurfactant. The application describes specific examples in which a fluorosurfactant is not employed. See the attached Jing Declaration, para. 7. For instance, Example 1 describes the preparation of polymer films (i.e., substrates), the preparation of two bonding compositions, and the flood-coating of the film with the bonding composition. Jing Declaration, para 7. It is further noted that "Samples were prepared by contacting a fluoropolymer film surface with the bonding composition-coated substrate surface to form a laminate precursor." These samples were then irradiated. The remaining examples are likewise devoid of any mention of the use of a fluorosurfactant. Jing Declaration, para. 7.

Furthermore, at page 6 of the specification, it is indicated that the "bonding composition may include other additives, for example, a vinylsilane, such as an alkoxyvinylsilane, polyhydroxy aromatic compounds, or a thermosetting resin such as an epoxy resin, a urethane resin, a urea resin, or an acrylate resin." Again, fluorosurfactants are conspicuously missing from the list of other possible additives. One skilled in the art, reading the specification, would certainly have expected the applicant to mention the utilization of a fluorosurfactant if the applicant had contemplated the use of a fluorosurfactant at the surface of the fluoropolymer. Jing Declaration, para. 10. Failing to see any mention of the use of any fluorosurfactant in the specification, including in any of the examples, one skilled in the art would readily appreciate that applicant had possession of the concept of a fluoropolymer surface that is substantially free of fluorosurfactant. Jing Declaration, para. 11.

Thus, in a manner closely analogous to the *Parks* case, one having ordinary skill in the art would readily appreciate that applicants had possession of the concepts set forth in claim 18. Jing Declaration, para. 12. This claim is in full compliance with 35 U.S.C. §112, first paragraph.

Claims 1-17 and 19 were also rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this regard, the Examiner indicated that claims 1-17 and 19

recite two limitations that are seemingly incompatible with one another. The claims require: (1) that the surface of the fluoropolymer is bonded directly to the surface of the substrate, and (2) that a bonding composition be interposed between the surface of the fluoropolymer and the surface of the substrate. However, the Examiner asserts that if a bonding composition is interposed between the two surfaces, then the fluoropolymer surface will not be bonded directly to the substrate surface. Rather, the fluoropolymer surface will be bonded to the bonding composition, which in turn will be bonded to the substrate surface. Alternatively, if the fluoropolymer surface is directly bonded to the substrate surface, then nothing can be interposed between the two surfaces.

As a result, for the purpose of examination, the phrase "surface of the fluoropolymer is bonded directly to the surface of the substrate" was taken by the Examiner to mean that the surfaces of both the fluoropolymer and the substrate are in direct contact with the bonding composition.

Claim 1 has been canceled and new claim 20 has been introduced. Claim 20 defines the composite article wherein one or both of the surfaces has been treated with a bonding composition, and clarifies that the surface of the fluoropolymer is in contact with and bonded directly to the surface of the substrate.

Claim 19 defines a laminated article comprising a fluoropolymer bonded to a substrate utilizing a bonding composition including an aromatic light-absorbing compound and an electron donor exposed to actinic radiation wherein a surface of the fluoropolymer is bonded directly to a surface of the substrate. Thus, claim 19 defines the laminated article wherein the fluoropolymer surface is directly bonded to the substrate surface, and there is no intermediate layer interposed between the two surfaces.

Claims 1-17 and 19, as amended, are definite in compliance with 35 U.S.C. § 112, second paragraph.

§ 102 Rejections

According to the MPEP, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art

reference." See MPEP 2131 (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631) (emphasis added).

As noted above, new claim 20 relates to a composite article comprising a fluoropolymer having a surface and a substrate having a surface in contact with the surface of the fluoropolymer. One or both of the surfaces has been treated with a bonding composition, the bonding composition including a light-absorbing compound and an electron donor. The bonding composition has been exposed to actinic radiation of a wavelength that is absorbed by the light-absorbing compound, so that the surface of the fluoropolymer is in contact with and bonded directly to the surface of the substrate.

Stoeppelmann

Claims 1, 3, 6-8, 13, 16 and 17 were rejected under 35 U.S.C. § 102(b) as being anticipated by Stoeppelmann (U.S. Patent 5,869,157) [hereinafter Stoeppelmann].

Stoeppelmann does not teach or describe the invention described in independent claim 20. In particular, the polyamide "substrate" of Stoeppelmann is bonded directly to the intermediate layer described therein. That intermediate layer then interacts with the fluoropolymer to promote adhesion.

Stoeppelmann does not teach or describe a composite fluoropolymer article wherein the surface of the fluoropolymer is in contact with and bonded directly to the surface of the substrate. Thus, Stoeppelmann does not disclose all of the elements of new claim 20.

Claims 2, 6-8, 13, 16 and 17 each ultimately depend from new claim 20 and add patentable features thereto. In light of the foregoing discussion with respect to claim 20, Stoeppelmann also does not teach or describe the invention as claimed in claims 2, 6-8, 13, 16 and 17.

The Applicants respectfully submit that the rejection of claims 1, 3, 6-8, 13, 16 and 17 under 35 U.S.C. § 102(b) as being anticipated by Stoeppelmann has been overcome and kindly request that this rejection be withdrawn.

Nishii

Claims 1-4, 6, 12-16, 18 and 19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Nishii (U.S. Patent 5,470,617) [hereinafter Nishii].

Referring to new independent claim 20, Nishii does not teach or describe the invention described in independent claim 20. In particular, Nishii describes only a process for modifying the surfaces of molded materials made of fluorine resins. This process requires the presence of both an ultraviolet-absorbing compound and a fluorosurfactant. Once modified, Nishii teaches that the fluoropolymer film is adhered to a substrate (all of the examples show a stainless steel plate) with an epoxy resin adhesive. See Nishii, Column 6, lines 19-24. Thus, in Nishii, it is the epoxy resin adhesive layer that interacts with the substrate. One skilled in the art would recognize that such an epoxy resin adhesive layer is not a "substrate." For instance, in the "Compilation of ASTM Standard Definitions," Eighth Edition, 1994, page 512 (copy attached), a "substrate" is defined as "that which lies under; foundation." Moreover, on the same page, the ASTM standard definition for a substrate as related to adhesives is noted to be "a material upon which an adhesive is applied."

In Nishii, there is no direct bonding between the fluoropolymer and the substrate. The epoxy resin adhesive layer of Nishii is not a "substrate;" rather, it is an adhesive layer applied to a metal substrate. Thus, Nishii does not disclose all of the elements of new claim 20.

Claims 2-4, 6, and 12-16 each ultimately depend from claim 20 and add patentable features thereto. In light of the foregoing discussion with respect to claim 20, Nishii also does not teach or describe the invention as claimed in claims 2-4, 6, and 12-16.

With respect to independent claim 18, Nishii also does not teach or describe a treated fluoropolymer substrate suitable for bonding directly to a polymeric substrate comprising a surface exposed to a combination of a light-absorbing compound and an electron donor and actinic radiation wherein the fluoropolymer substrate surface is substantially free of fluorosurfactant, as described in amended claim 18. In fact, it is very clear from the disclosure of Nishii that the fluorosurfactant is necessary so that "sufficient amounts of ultraviolet-absorbing compounds are coated uniformly on the surfaces of the molded materials made of fluorine resins." See Nishii, column 4, lines 62-5. Thus, Nishii does not disclose all of the elements of amended claim 18.

With respect to independent claim 19, Nishii does not teach or describe a laminated article comprising a fluoropolymer bonded to a substrate utilizing a bonding composition including an aromatic light-absorbing compound and an electron donor exposed to actinic radiation wherein a surface of the fluoropolymer is bonded directly to a surface of the substrate, as described in

amended claim 19. As indicated above, in Nishii, it is the epoxy layer that interacts with the substrate. There is no direct bonding between the fluoropolymer and the substrate. Thus, Nishii does not disclose all of the elements of amended claim 19.

Further, Nishii fails to disclose a bonding composition including an aromatic light-absorbing compound and an electron donor. For this additional reason, Nishii fails to disclose all of the elements of claim 19.

The Applicants respectfully submit that the rejection of claims 1-4, 6, 12-16, 18 and 19 under 35 U.S.C. § 102(b) as being anticipated by Nishii has been overcome and kindly request that this rejection be withdrawn.

Vasta

Claims 1, 3, 6, 7, 10 and 13-15 were rejected under 35 U.S.C. § 102(b) as being anticipated by Vasta (U.S. Patent 4,495,247) [hereinafter Vasta].

Vasta does not teach or describe the invention described in independent claim 20. In particular, the primer composition of Vasta is bonded directly to the substrate described therein (through the amino alkyl alkoxy silane component). The primer composition then interacts with the fluoropolymer to promote adhesion between the primer composition and the fluoropolymer. The fluoropolymer of Vasta does not have a surface in contact with and bonded directly to the surface of the substrate, as described in new claim 20. Thus, Vasta does not disclose all of the elements of claim 20.

Claims 3, 6, 7, 10 and 13-15 each ultimately depend from claim 20 and add patentable features thereto. In light of the foregoing discussion with respect to claim 20, Vasta also does not teach or describe the invention as claimed in claims 3, 6, 7, 10 and 13-15.

The Applicants respectfully submit that the rejection of claims 1, 3, 6, 7, 10 and 13-15 under 35 U.S.C. § 102(b) as being anticipated by Vasta has been overcome and kindly request that this rejection be withdrawn.

Tannenbaum

Claims 1, 3, 6, 8, 12, 14 and 15 were rejected under 35 U.S.C. § 102(b) as being anticipated by Tannenbaum (U.S. Patent 5,562,991) [hereinafter Tannenbaum].

Tannenbaum does not teach or describe the invention described in new independent claim 20. In particular, the primer composition of Tannenbaum is bonded directly to the smooth substrate described therein. The primer composition then interacts with the fluoropolymer to promote adhesion between the primer composition and the fluoropolymer by forming a mechanical interlock. The fluoropolymer of Tannenbaum does not have a surface in contact with and bonded directly to the surface of the substrate, as described in new claim 20. Thus, Tannenbaum does not disclose all of the elements of new claim 20.

Claims 3, 6, 8, 12, 14 and 15 each ultimately depend from claim 20 and add patentable features thereto. In light of the foregoing discussion with respect to claim 20, Tannenbaum also does not teach or describe the invention as claimed in claims 3, 6, 8, 12, 14 and 15.

The Applicants respectfully submit that the rejection of claims 1, 3, 6, 8, 12, 14 and 15 under 35 U.S.C. § 102(b) as being anticipated by Tannenbaum has been overcome and kindly request that this rejection be withdrawn.

§ 102/103 Rejections

According to the MPEP, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." See MPEP 2131 (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631) (emphasis added). Furthermore, "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." See MPEP 2143 (emphasis added).

Stoeppelmann

Claims 18 and 19 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Stoeppelmann.

Claim 18 relates to a treated fluoropolymer substrate suitable for bonding directly to a polymeric substrate. The fluoropolymer substrate comprises a surface exposed to a combination

of a light-absorbing compound and an electron donor and actinic radiation. Also, the fluoropolymer substrate surface is substantially free of fluorosurfactant.

As discussed above with respect to claim 20, Stoeppelmann does not teach, suggest or describe a treated fluoropolymer substrate suitable for bonding directly to a polymeric substrate. In particular, the polyamide "substrate" of Stoeppelmann is bonded directly to the intermediate layer described therein. That intermediate layer then interacts with the fluoropolymer to promote adhesion. Thus, claim 18 is patentable over Stoeppelmann.

Claim 19 relates to a laminated article. The laminated article comprises a fluoropolymer bonded to a substrate utilizing a bonding composition including an aromatic light-absorbing compound and an electron donor exposed to actinic radiation. Furthermore, the fluoropolymer has a surface bonded directly to a surface of the substrate.

Again, Stoeppelmann does not teach, suggest or describe the invention as described in claim 19. In particular, Stoeppelmann does not teach, suggest or describe a fluoropolymer that has a surface bonded directly to a surface of the substrate. Thus, Applicants assert that claim 19 is patentable over Stoeppelmann.

The Applicants respectfully submit that rejection of claims 18 and 19 under 35 U.S.C. § 102(b)/103(a) as being anticipated by or in the alternative obvious over Stoeppelmann has been overcome and kindly request that this rejection be withdrawn.

Vasta

Claim 19 stands rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Vasta.

Claim 19 relates to a laminated article. The laminated article comprises a fluoropolymer bonded to a substrate utilizing a bonding composition including an aromatic light-absorbing compound and an electron donor exposed to actinic radiation. Furthermore, the fluoropolymer has a surface bonded directly to a surface of the substrate.

Vasta does not teach, suggest or describe the invention described in amended claim 19. Particularly, the primer composition of Vasta is bonded directly to the substrate described therein (through the amino alkyl alkoxy silane component). The primer composition then interacts with the fluoropolymer to promote adhesion between the primer composition and the fluoropolymer. Since

the fluoropolymer of Vasta never comes into contact with the substrate, it does not have a surface bonded directly to a surface of the substrate, as defined by amended claim 19.

The Applicants respectfully submit that the rejection of claim 19 under 35 U.S.C. § 102(b)/103(a) as being anticipated by or in the alternative obvious over Vasta has been overcome and kindly request that this rejection be withdrawn.

Tannenbaum

Claims 19 stands rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Tannenbaum.

Claim 19 relates to a laminated article. The laminated article comprises a fluoropolymer bonded to a substrate utilizing a bonding composition including an aromatic light-absorbing compound and an electron donor exposed to actinic radiation. Furthermore, the fluoropolymer has a surface bonded directly to a surface of the substrate.

Tannenbaum does not teach, suggest or describe the invention described in independent claim 19. In particular, the primer composition of Tannenbaum is bonded directly to the smooth substrate described therein. The primer composition then interacts with the fluoropolymer to promote adhesion between the primer composition and the fluoropolymer by forming a mechanical interlock. The fluoropolymer of Tannenbaum does not have a surface bonded directly to a surface of the substrate, as defined by amended claim 19.

The rejection of claim 19 under 35 U.S.C. § 102(b)/103(a) as being anticipated by or in the alternative obvious over Tannenbaum has been overcome and should be withdrawn.

§ 103 Rejections

According to the MPEP, "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." See MPEP 2143 (emphasis added).

Stoeppelmann

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Stoeppelmann. Claim 9 ultimately depends upon claim 20 and further adds patentable features thereto. Specifically, claim 9 relates to an article as described [ultimately] in claim 20 wherein the electron donor is a fluoroalkylamine.

For at least the reasons stated above with respect to new claim 20, Stoeppelmann fails to teach, suggest or describe all of the claim limitations of claim 20, and thus also fails to do so for amended claim 9.

Furthermore, Stoeppelmann does not provide any suggestion or motivation to modify the disclosure of Stoeppelmann to include the use of a fluoroalkylamine. It is only in light of the present disclosure that the Examiner now asserts this adhesion-enhancing modification. Thus, the rejection of claim 9 as obvious in light of Stoeppelmann is improper.

The Applicants submit that the rejection of claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Stoeppelmann has been overcome and kindly request that the rejection be withdrawn.

Stoeppelmann in view of Gillham

Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Stoeppelmann in view of Gillham et al. (U.S. Patent 3,309,425) [hereinafter Gillham]. Claim 5 depends upon claim 20 and further adds patentable features thereto. Specifically, claim 5 relates to an article as described in claim 20 wherein the light-absorbing compound includes a phosphonium compound.

For at least the reasons stated above with respect to claim 20, Stoeppelmann fails to teach, suggest or describe all of the claim limitations of claim 20, and thus also fails to do so for amended claim 5.

Gillham relates to thermoplastic resins containing phosphonium salts as flame-retardant agents. Gillham does not teach, suggest or describe a fluoropolymer having a surface in contact with and bonded directly to the surface of a substrate, as defined by new claim 20. Thus, the combination of Gillham and Stoeppelmann fails to describe all of the limitations of claim 20.

Furthermore, there is no suggestion in Stoeppelmann to modify the composition described therein to include phosphonium compounds. The success of the adhesion composition described in Stoeppelmann depends upon the presence of a NH_2:COOH end-group ratio in the range of 1.5:1 to 3:1. Stoeppelmann, column 3, lines 59-63. The addition of cationic additives to the adhesion promoter composition may have an adverse effect on that end-group ratio. The Patent Office has not established a reasonable expectation of success in making this specific modification by adding this particular flame-retardant.

The Patent Office has not met its burden of showing all of the claim elements of claim 5; it has not shown motivation to modify the disclosures of Stoeppelmann and Gillham to provide this specific additive to Stoeppelmann; and it has not met its burden of establishing a reasonable expectation of success upon making such a modification. Thus, the Patent Office has not met its burden of establishing a prima facie case of obviousness with respect to claim 5 in light of Stoeppelmann in view of Gillham.

The Applicants respectfully submit that the rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Stoeppelmann in view of Gillham has been overcome and kindly request that the rejection be withdrawn.

Tannenbaum in view of Friedman

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tannenbaum in view of Friedman et al. (U.S. Patent 5,908,704) [hereinafter Friedman]. Claim 11 depends upon new claim 20 and adds patentable features thereto. Specifically, claim 11 relates to an article described in claim 20 wherein the bonding composition includes a vinyl silane.

For at least the reasons stated above with respect to claim 20, Tannenbaum fails to teach, suggest or describe all of the claim limitations of amended claim 20, and thus also fails to do so for claim 11. Friedman relates to protective glazing laminates. Friedman states, however, that the fluoropolymer films cannot be bonded directly to the substrates (in Friedman, these substrates were glass). See Friedman, column 3, lines 55-58. Instead, Friedman stresses the necessity of adding "coupling agents" to facilitate bonding between the fluoropolymer and the substrate

surface. See Friedman, column 4, lines 35-49. Combining the disclosure of Friedman with that of Tannenbaum does not overcome the deficiencies of Tannenbaum with respect to claim 20.

The Patent Office has not met its burden of showing all of the claim elements of amended claim 11. Therefore, the Patent Office has not met its burden of establishing a prima facie case of obviousness with respect to claim 11 in light of Tannenbaum in view of Friedman.

The Applicants respectfully submit that the rejection of claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Tannenbaum in view of Friedman has been overcome and kindly request that the rejection be withdrawn.

Double Patenting Rejection

The Patent Office has rejected claims 18 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 29 of U.S. Patent No. 6,752,894 [hereinafter Jing]. The Patent Office admits that the claims are not identical, but asserts that the claims are not patentably distinct. The Patent Office asserts that the invention of the instant claim 18 represents a genus of which the invention described by claim 29 of Jing is a species.

Applicants respectfully traverse the obviousness-type double patenting rejection. Claim 29 of Jing requires a photoreactive solution comprising solvent, at least one inorganic photochemical electron donor, and a cationic assistant. In contrast, amended claim 18 defines a treated fluoropolymer substrate comprising, *inter alia*, an electron donor selected from the group consisting of an amine, a phosphine, a thiol, a thioether, phenol, thiophenol, phenolate, thiophenolate and combinations thereof. Thus, the electron donor as defined in amended claim 18 is patentably distinct from that claimed in the Jing patent.

For the foregoing reasons, the Applicants respectfully submit that the double patenting rejection of claim 18 has been overcome and kindly request that this rejection be withdrawn.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance, and a favorable action to that end is courteously solicited. In the event the Examiner would prefer language other than that set forth in the claims, it is requested that a telephone interview be had to assist in expediting the prosecution of the application.

Respectfully submitted,

July 8, 2005
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